

Synthesis and Antibacterial Activity of Quaternary Ammonium 4-Deoxypyridoxine Derivatives

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Abstract

© 2016 Nikita V. Shtyrlin et al. A series of novel quaternary ammonium 4-deoxypyridoxine derivatives was synthesized. Two compounds demonstrated excellent activity against a panel of Gram-positive methicillin-resistant *S. aureus* strains with MICs in the range of 0.5-2 µg/mL, exceeding the activity of miramistin. At the same time, both compounds were inactive against the Gram-negative *E. coli* and *P. aeruginosa* strains. Cytotoxicity studies on human skin fibroblasts and embryonic kidney cells demonstrated that the active compounds possessed similar toxicity with benzalkonium chloride but were slightly more toxic than miramistin. SOS-chromotest in *S. typhimurium* showed the lack of DNA-damage activity of both compounds; meanwhile, one compound showed some mutagenic potential in the Ames test. The obtained results make the described chemotype a promising starting point for the development of new antibacterial therapies.

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